

ORIGINAL



0000050623

BEFORE THE ARIZONA CORPORATION COMMISSION

**COMMISSIONERS**

JEFF HATCH-MILLER, CHAIRMAN  
WILLIAM A. MUNDELL  
MARC SPITZER  
MIKE GLEASON  
KRISTIN K. MAYES

2006 MAY 18 P 4: 39

AZ CORP COMMISSION  
DOCUMENT CONTROL

IN THE MATTER OF THE APPLICATION OF  
PALO VERDE UTILITIES COMPANY FOR AN  
EXTENSION OF ITS EXISTING CERTIFICATE  
OF CONVENIENCE AND NECESSITY.

Docket No. SW-03575A-05-0470

IN THE MATTER OF THE APPLICATION OF  
SANTA CRUZ WATER COMPANY FOR AN  
EXTENSION OF ITS EXISTING CERTIFICATE  
OF CONVENIENCE AND NECESSITY.

Docket No. W-03576A-05-0470

**NOTICE OF FILING  
IN COMPLIANCE WITH  
DECISION NO. 68498**

Santa Cruz Water Company, LLC (Santa Cruz) and Palo Verde Utilities Company, LLC (Palo Verde) (collectively, Global), in compliance with Decision No. 68498 (February 23, 2006)(the Order Preliminary), provide notice of filing the attached compliance items.

1. The Order Preliminary required Palo Verde to file within 90 days (i.e. May 24, 2006), "documentation from CAAG stating that it has Section 208 authority to operate within the 387 District's boundaries." (Order Preliminary, page 13, lines 14-17). Attached as Exhibit A is the required documentation from CAAG.
2. The Order Preliminary required Santa Cruz to file within 365 days, a copy of "the amendment to its existing Designation of Assured Water Supply, stating that there is an adequate water supply." (Order Preliminary, page 14, lines 4-7). Attached as Exhibit B is the required amendment to the Santa Cruz's Designation of Assured Water Supply.
3. The Order Preliminary required Santa Cruz to file within 90 days (i.e. May 24, 2006), a copy of its "ADEQ ATC for its arsenic remediation plan". (Order

ROSHKA DEWULF & PATTEN, PLC  
ONE ARIZONA CENTER  
400 EAST VAN BUREN STREET - SUITE 800  
PHOENIX, ARIZONA 85004  
TELEPHONE NO 602-256-6100  
FACSIMILE 602-256-6800

Preliminary, page 14, lines 8-10). The remediation will be accomplished through blending water from multiple wells, in accordance with an approved Blending Plan. (Order Preliminary, Finding of Fact No. 20). Thus, the approved blending plan is the arsenic remediation plan. Attached as Exhibit C is ADEQ's Approval to Construct (ATC) for the Neely West Well, which includes approval of Santa Cruz's May 2005 Blending Plan to blend water from the Neely West well with water from the Smith and Vance Wells. Accordingly, this requirement is satisfied. For informational purposes, attached as Exhibit D is a copy of the May 2005 Blending Plan which ADEQ approved. Also for information purposes, attached as Exhibit E is the ATC for the Rancho El Dorado (Neely) production / treatment plant, which will be used in the blending process.

RESPECTFULLY SUBMITTED this 18<sup>th</sup> day of May 2006.

ROSHKA DEWULF & PATTEN, PLC

By



Michael W. Patten  
One Arizona Center  
400 East Van Buren Street, Suite 800  
Phoenix, Arizona 85004  
(602) 256-6100

Original + 15 copies of the foregoing  
filed this 18<sup>th</sup> day of May 2006, with:

Docket Control  
ARIZONA CORPORATION COMMISSION  
1200 West Washington  
Phoenix, Arizona 85007

ROSHKA DEWULF & PATTEN, PLC  
ONE ARIZONA CENTER  
400 EAST VAN BUREN STREET - SUITE 800  
PHOENIX, ARIZONA 85004  
TELEPHONE NO 602-256-6100  
FACSIMILE 602-256-6800

1 Copies of the foregoing hand-delivered/mailed  
2 this \_\_\_\_ day of May 2006, to:

3 Dwight D. Nodes, Esq.  
4 Administrative Law Judge  
5 Hearing Division  
6 Arizona Corporation Commission  
7 1200 West Washington  
8 Phoenix, Arizona 85007

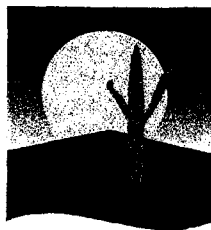
9 David Ronald  
10 Legal Division  
11 Arizona Corporation Commission  
12 1200 West Washington  
13 Phoenix, Arizona 85007

14 Brian Bozzo  
15 Compliance Manager, Utilities Division  
16 Arizona Corporation Commission  
17 1200 West Washington  
18 Phoenix, Arizona 85007

19 By Mary Spolito  
20  
21  
22  
23  
24  
25  
26  
27

EXHIBIT

"A"



**CENTRAL  
ARIZONA  
ASSOCIATION OF  
GOVERNMENTS**

*Serving Gila & Pinal Counties since 1970!*

**RECEIVED**

**FEB 06 2006**

**HISTORIC BELMONT BUILDING**

**271 MAIN STREET**

**SUPERIOR, AZ 85273**

February 3, 2006

Trevor Hill, President  
Global Water Resources, LLC  
Deer Valley Financial Centre  
22601 N. 19<sup>th</sup> Avenue - Suite 210  
Phoenix, AZ 85027

Dear Mr. Hill:

**SUBJECT: Transfer of the 387 Wastewater Improvement District to Palo Verde Utilities Company**

Pinal County has relegated the day-to-day operation of the 387 Wastewater Improvement District (WWID) to Palo Verde Utilities Company (PVUC). In this time, Pinal County is in the process of dissolving the district, in an effort to transfer full control to PVUC.

As part of this transfer, an administrative amendment to the CAAG 208 Areawide Water Quality Management Plan was required. The issue was brought forth to the Region V Council of Governments on Wednesday, January 25, 2006.

After Council deliberation, the Regional Council approved the transfer of the 387 WWID to PVUC, a subsidiary of Global Water Resources, LLC, contingent upon the successful dissolution of the 387 WWID by Pinal County.

Minutes from this Regional Council Meeting are on file at our offices at CAAG for public review. If you have any further questions, feel free to contact me at any time.

Sincerely,

Maxine Leather  
Executive Director

ML/jpa

c. Terry Doolittle, Pinal County Manager

**GILA COUNTY:** GLOBE, HAYDEN, MIAMI, PAYSON, WINKELMAN  
**PINAL COUNTY:** APACHE JUNCTION, CASA GRANDE, COOLIDGE, ELOY, FLORENCE, KEARNY, MAMMOTH, MARICOPA, QUEEN CREEK, SUPERIOR

**LOCAL:** (520) 689-5004 • **TOLL-FREE & VTTY:** 1-800-782-1445 • **TDD:** (520) 689-5009 • **FAX:** (520) 689-5020

EXHIBIT

"B"

1  
2 **DEPARTMENT OF WATER RESOURCES**  
3 **BEFORE THE DIRECTOR**  
4

5  
6 **IN THE MATTER OF THE APPLICATION OF**  
7 **SANTA CRUZ WATER COMPANY**  
8 **FOR A DESIGNATION AS HAVING AN ASSURED**  
9 **WATER SUPPLY**

) **AWS No. 2006-001**  
) **DECISION AND ORDER**  
) **No. 26-401667.0000**

10 On March 11, 2005, the Department of Water Resources (Department) received an application  
11 from the Santa Cruz Water Company (Santa Cruz) requesting that the Department modify Santa Cruz's  
12 designation of assured water supply pursuant to A.R.S. § 45-576(D) and A.A.C. R12-15-709(C). On June  
13 28, 2005, the Department determined the application to be complete. On July 2, 2005 and July 9, 2005,  
14 the Department gave public notice pursuant to A.R.S. § 45-578 and no objections were filed with the  
15 Department.

16 After receiving Santa Cruz's request to modify its designation of assured water supply and  
17 reviewing relevant information regarding the modification request, including: 1) the hydrologic study  
18 submitted with the application and other information on file with the Department for the proposed  
19 groundwater supply; 2) information submitted regarding Santa Cruz's consistency with the management  
20 plan and management goal for the Pinal Active Management Area (AMA); 3) information provided by the  
21 Arizona Department of Environmental Quality (ADEQ) regarding the quality of the proposed source of  
22 water; and 4) information regarding Santa Cruz's financial capability to construct the necessary delivery  
23 system, treatment works and storage facilities, the Department finds the following:

- 24 1. Santa Cruz is a private water company regulated by the Arizona Corporation Commission (ACC).
- 25 2. Santa Cruz has the right to withdraw and deliver groundwater to its customers pursuant to service  
26 area right No. 56-001355.0000.
- 27 3. On October 24, 2003, Santa Cruz was designated as having an assured water supply in Decision  
28 and Order AWS 2003-006.
4. Santa Cruz has the legal authority to provide water service to its customers located within the  
geographic area described in its Certificate of Convenience and Necessity (CC&N). See ACC

1 Decision No. 67830, May 5, 2005; ACC Decision No. 68448, Feb. 2, 2006.

- 2
- 3 5. On June 30, 2005, Santa Cruz applied to the ACC for an extension of its CC&N to provide water
- 4 service to the public in the area known as the 387 Domestic Water Improvement District in Pinal
- 5 County. (The area sought to be added to Santa Cruz's CC&N is referred to herein as the
- 6 "extension area.")
- 7 6. On February 23, 2006, pursuant to A.R.S. § 40-282(D), the ACC issued an Opinion and Order
- 8 Granting an Order Preliminary ("Order Preliminary") authorizing Santa Cruz to provide water
- 9 service to customers located within the extension area pending issuance of a final order
- 10 extending Santa Cruz's CC&N to include the extension area. The Order Preliminary provides that
- 11 if certain requirements are satisfied by the dates specified in the Order, the ACC shall issue an
- 12 order extending Santa Cruz's CC&N to include the extension area.
- 13 7. Santa Cruz currently serves groundwater through its municipal distribution system to customers
- 14 within its service area.
- 15 8. Santa Cruz's current demand as of calendar year 2004 is 1,215.60 acre-feet per year ("current
- 16 demand").
- 17 9. Santa Cruz's committed demand as of calendar year 2004 is 6409.75 acre-feet per year
- 18 ("committed demand"). This includes committed demand within the extension area.
- 19 10. Santa Cruz's projected demand for 2016, the tenth calendar year from the date of this Decision
- 20 and Order, is estimated to be 15,851.95 acre-feet ("projected demand"). This includes projected
- 21 demand within the extension area.
- 22 11. Santa Cruz's estimated water demand, which is the sum of Santa Cruz's current demand,
- 23 committed demand and projected demand, is 23,477.30 acre-feet per year.
- 24 12. Santa Cruz's groundwater supply proven to be physically available for a minimum of one hundred
- 25 years is 25,575.21 acre-feet per year, which exceeds Santa Cruz's estimated water demand of
- 26 23,477.30 acre-feet per year.
- 27 13. Historic hydrologic information demonstrates that the depth-to-static water level within Santa
- 28 Cruz's service area is currently approximately 350 feet below land surface with a minimal regional
- decline.



14. After one hundred years of pumping at 23,477.30 acre-feet per year, the depth-to-static water level within Santa Cruz's service area is not expected to exceed 1,100 feet below land surface.
15. Santa Cruz's groundwater allowance that is consistent with the management goal of the Pinal AMA pursuant to A.A.C. R12-15-705(H) is 125 gallons per capita per day.
16. As of the date of this Decision and Order, Santa Cruz has pledged a total of 2592.50 acre-feet per year of extinguishment credits to its designation, as shown in Appendix A to this Decision and Order. During the effective period of this Decision and Order, Santa Cruz intends to pledge additional extinguishment credits in support of its designation.
17. Santa Cruz is currently regulated as a large municipal provider under the Municipal Conservation Program in the Third Management Plan for the Pinal AMA. As of the date the application was filed, Santa Cruz had not been found to be out of compliance with the Third Management Plan.
18. In accordance with ACC Rules and Regulations, Santa Cruz finances extensions of its distribution system through equity and by line extension agreements with owners of new developments. Any owner of a new subdivision served by Santa Cruz must prove financial capability to construct the necessary water infrastructure to the appropriate platting entity and the Arizona Department of Real Estate pursuant to Titles 9, 11, and 32 of Arizona Revised Statutes.
19. The water supply that Santa Cruz intends to provide its customers currently meets all federal and state water quality standards, based on compliance information provided by ADEQ.
20. The Director previously issued Certificates of Assured Water Supply for the following subdivisions within the Additional Area: Palo Brea (DWR No. 27-401143.0000), Smith Farms (DWR No. 27-401185.0000) and Maricopa Meadows (DWR No. 27-401309.0000) (collectively, "the Subdivisions"). In order to demonstrate that proposed groundwater withdrawals for these subdivisions will be consistent with the management goal for the Pinal AMA, extinguishment credits were pledged to each Subdivision. The extinguishment credits pledged to each of the Subdivisions total 623.82 acre-feet per year, as shown in Appendix A to this Decision and Order.

**Having reviewed the Findings of Fact, the Department makes the following Conclusions of Law:**

1. An annual volume of 25,575.21 acre-feet per year of groundwater is physically, continuously and legally available to Santa Cruz for a minimum of 100 years as prescribed in A.A.C. R12-15-703.

1 This annual volume of groundwater exceeds Santa Cruz's estimated water demand, which is  
2 23,477.30 acre-feet per year.

3  
4 2. In accordance with A.A.C. R12-15-705, Santa Cruz's use of groundwater is consistent with the  
5 management goal of the Pinal AMA.

6 3. The water supply served by Santa Cruz currently meets the water quality requirements specified  
7 in A.A.C. R12-15-704.

8 4. In accordance with A.A.C. R12-15-706, Santa Cruz meets the standard established for  
9 determining consistency with the management plan for the Pinal AMA.

10 5. Santa Cruz has satisfied the financial capability criteria prescribed in A.A.C. R12-15-707.

11 6. Santa Cruz has satisfied all the requirements for a designation of an assured water supply.

12 **Having reviewed the Conclusions of Law, the Department hereby issues this Decision and**  
13 **Order designating Santa Cruz as having an assured water supply, subject to the following**  
14 **conditions:**

15 1. The Department reserves the right under A.A.C. R12-15-709(A) to periodically review and modify  
16 the designation for good cause as conditions warrant.

17 2. Pursuant to A.A.C. R12-15-709(A), the Department may revoke this designation at any time if the  
18 findings of fact or the conclusions of law upon which the designation is based change or are  
19 invalid, or if an assured water supply no longer exists.

20 3. The Department's determination that an assured water supply exists for Santa Cruz is based on  
21 its analysis of the water supplies pledged by Santa Cruz.

22 4. Pursuant to A.A.C. R12-15-704, Santa Cruz shall satisfy any state water quality requirements  
23 established for its proposed use after the date of this designation.

24 5. Santa Cruz shall notify the Department when the ACC issues any final decision and/or order  
25 regarding its CC&N area.

26 6. This Decision and Order designating Santa Cruz as having an assured water supply shall apply  
27 to Santa Cruz's legally authorized service area, including the extension area.

28 7. It is expected that Santa Cruz will pledge additional extinguishment credits to its designation as  
its service area is developed. If Santa Cruz intends to add extinguishment credits to its

groundwater account, it must notify the Department's Office of Assured and Adequate Water Supply to add these credits to its groundwater account.

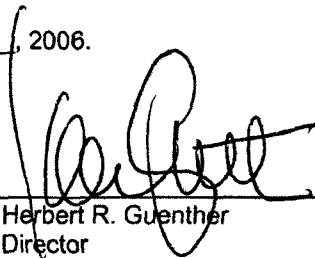
8. Santa Cruz shall annually provide to the Department the following information in the manner prescribed in A.A.C. R12-15-711:

- a. The estimated future demand of platted, undeveloped lots that will be located in Santa Cruz's service area.
- b. The projected demand at build-out for customers with which Santa Cruz has entered into a notice of intent to serve agreement in the calendar year.
- c. A report regarding Santa Cruz's compliance with water quality requirements.
- d. The depth-to-static water level of all wells from which Santa Cruz withdrew water during the calendar year.
- e. Any other information requested by the Director to determine whether Santa Cruz is continuing to meet all the requirements necessary to maintain this designation of assured water supply.

10. Any change in the administrative rule numbers cited in this Decision and Order shall have no legal effect. This Decision and Order designating Santa Cruz as having an assured water supply shall not be affected solely because the rule numbers cited herein may have changed after the effective date of this Order.

**IT IS HEREBY ORDERED THAT SANTA CRUZ WATER COMPANY BE DESIGNATED AS  
HAVING AN ASSURED WATER SUPPLY.**

DATED this 4<sup>th</sup> day of MAY, 2006.

  
Herbert R. Guenther  
Director  
Arizona Department of Water Resources

1 A copy of the foregoing  
2 **Decision and Order** mailed  
3 by certified mail this \_\_\_\_\_  
4 day of \_\_\_\_\_,  
2006, to the following:

5 Certified Mail No. \_\_\_\_\_

6  
7 Sent by: \_\_\_\_\_  
Norma J. Coupaud

8 Cindy Liles  
9 Global Water Resources, LLC  
21410 North 19<sup>th</sup> Avenue, Suite 201  
Phoenix, Arizona 85027

10  
11 First class mail copies to:

12 Southwest Groundwater Consultants  
13 3900 E. Camelback Rd. Suite 200  
Phoenix, Arizona 85018

14 Shilpa Hunter-Patel  
15 Withey Anderson & Morris PLC  
2525 East Arizona Biltmore Circle, Suite A-212  
Phoenix, Arizona 85016-2133

16 Mr. Roy Tanney  
17 Arizona Department of Real Estate  
2910 N. 44th Street  
Phoenix, Arizona 85018

18 Mr. Randy Edmond  
19 Pinal AMA  
1729 N. Trekell Rd., Suite 105  
20 Casa Grande, Arizona 85222

# **APPENDIX A: Summary of Santa Cruz Water Company Extinguishment Credits** Designation of Assured Water Supply for Santa Cruz Water Company 26-401667.0000

Extinguishment No.	Acre-feet/year	Pledged to:
<b>Santa Cruz Water Company pledged extinguishments:</b>		
58-102952.0012	53.64	26-401667.0000 (Modification of 26-400804.0000)
58-102625.0008	160.50	26-401667.0000 (Modification of 26-400804.0000)
58-150035.0009	360.00	26-401667.0000 (Modification of 26-400804.0000)
58-150035.0007	282.00	26-401667.0000 (Modification of 26-400804.0000)
58-102625.0011	600.15	26-401667.0000 (Modification of 26-400804.0000)
58-102952.0008	207.30	26-400804.0000 (Modification of 26-400360.0000)
58-102952.0009	232.60	26-400804.0000 (Modification of 26-400360.0000)
58-102952.0010	42.00	26-400804.0000 (Modification of 26-400360.0000)
58-102952.0003	450.01	26-400360.0000 (Original designation)
58-111746.0003	204.30	26-400804.0000 (Modification of 26-400360.0000)
<b>TOTAL</b>	<b>2592.50</b>	
<b>Extinguishment Credits pledged to the Subdivisions:</b>		
58-102329.0005	329.10	27-401014.0004 (Maricopa Meadows - later re-issued as 27-401309.0000)
58-109710.0002	210.31	27-401185.0000 (Smith Farms)
58-103658.0004	84.41	27-401143.0000 (Palo Brea)
<b>Subtotal</b>	<b>623.82</b>	

**TOTAL 3216.32**

EXHIBIT

"C"



ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY  
CERTIFICATE OF APPROVAL TO CONSTRUCT  
DRINKING WATER WELL FACILITIES

Page 1 Of 2

ADEQ File No: 20050467	LTF No: 36576
System Name: Santa Cruz Wtr	System Number: 11131
Project Owner: Santa Cruz Wtr Co	
Address: 22601 N. 19th Ave., #210, Phoenix, AZ 85027	
Project Location: Gilbert	County : Pinal
Description: 1. CONVERTING EXISTING AGRICULTURAL NEELY WEST WELL WITH ADWR #55-621407 TO DOMESTIC USE WITH CAPACITY OF 1,980 GPM; AND 2. BLENDING PLAN OF MAY, 2005 TO BLEND WATERS OF NEELY WEST WELL AND PREVIOUSLY APPROVED SMITH AND VANCE WELLS.	

*Approval to construct the above-described facilities as represented in the approved documents on file with the Arizona Department of Environmental Quality is hereby given subject to provisions 1 through 5 continued on page 2 through 2*

1. This project must be constructed in accordance with all applicable laws, including Title 49, Chapter 2, Article 9 of the Arizona Revised Statutes and Title 18, Chapter 5, Article 5 of the Arizona Administrative Code.
2. Upon completion of construction, the engineer shall fill out the Engineer's Certificate of Completion and forward it to the Central Regional office located in Phoenix. If all requirements have been completed, that unit will issue a Certificate of Approval of Construction. R18-5-507(B), Ariz. Admin.Code. At the project owner's request, the Department may conduct the final inspection required pursuant to R18-5-507(B); such a request must be made in writing in accordance with the time requirements of R18-5-507(C), Ariz. Admin. Code.
3. This certificate will be void if construction has not started within one year after the Certificate of Approval to Construct is issued, there is a halt in construction of more than one year, or construction is not completed within three years of the approval date. Upon receipt of a written request for an extension of time, the Department may grant an extension of time; an extension of time must be in writing. R18-5-505(E), Ariz. Admin. Code.
4. Operation of a newly constructed facility shall not begin until a Certificate of Approval of Construction has been issued by the Department. R18-5-507(A), Ariz. Admin. Code.

Reviewed by: jdl

By:

  
Kwame A. Agyare., P.E.

7/20/05  
Date

Manager, Drinking Water and  
Wastewater Engineering Review  
Water Quality Division

cc: File No : 20050467  
Regional Office: Central  
Owner: Santa Cruz Wtr Co  
County Health Department: Pinal  
Engineer: David Evans & Associates  
Planning and Zoning/Az Corp. Commission  
Engineering Review Database - Etr022

**CERTIFICATE OF APPROVAL TO CONSTRUCT  
WATER FACILITIES**

**ADEQ File No. 20050467**

**Page 2 of 2 : Provisions, continued**

5. ADEQ approval for a revised blending plan shall be obtained if sources or pumping rates change, pursuant to Arizona Administrative Code (A.A.C.) R18-4-221.B.



EXHIBIT

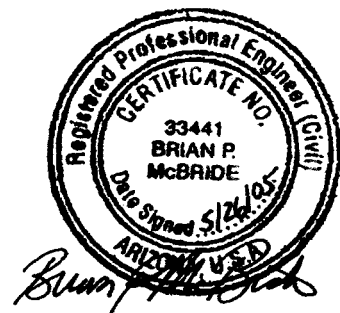
"D"



**Santa Cruz Water**  
**A Global Water Company**

*Groundwater Blending Report*

**May 2005**



McBride Engineering Solutions, Inc.  
7305 W. Boston Street, Chandler, AZ 85226  
Ph: (480) 759-9608 Fx: (480) 706-1106

with:



**SEPARATION PROCESSES, INC**

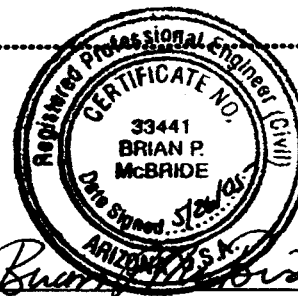
---



**Santa Cruz Water**  
**A Global Water Company**  
*Groundwater Blending Report*

**TABLE OF CONTENTS**

<b>1.0</b>	<b>BACKGROUND .....</b>	<b>1</b>
1.1	Purpose.....	1
1.2	Overview .....	1
<b>2.0</b>	<b>WATER QUALITY ANALYSIS.....</b>	<b>3</b>
<b>3.0</b>	<b>BLENDING ANALYSIS.....</b>	<b>4</b>
<b>4.0</b>	<b>OPERATING STRATEGIES.....</b>	<b>6</b>
4.1	Normal Operation .....	6
4.2	Set-Point Operation (3-Well Operations).....	6
4.2.1	Lock-out Combinations .....	8
4.2.2	Arsenic Concentration .....	8
4.2.3	Nitrate .....	9
4.2.4	Fluoride.....	9
4.2.5	Low Flow Interlock .....	9
4.3	Abnormal Operation .....	9
4.3.1	Abnormal Condition No. 1 - Smith Well Shutdown.....	9
4.3.2	Abnormal Condition No. 2 - Vance Well Shutdown.....	10
4.3.3	Abnormal Condition No. 3 - Neely-West Well Shutdown .....	10
<b>5.0</b>	<b>EQUIPMENT DESIGN CRITERIA .....</b>	<b>10</b>
<b>6.0</b>	<b>INSTRUMENTATION AND CONTROL .....</b>	<b>10</b>
<b>7.0</b>	<b>PROCEDURES .....</b>	<b>11</b>
7.1	Routine Monitoring.....	11
7.2	Initial Well Start-up .....	11
7.3	Initial Operations Period .....	12
7.4	Normal Operations Sampling Protocol .....	12
7.5	Start-Up Procedures .....	12
7.6	Shutdown Procedures.....	13
<b>8.0</b>	<b>ALARMS.....</b>	<b>13</b>





**Santa Cruz Water**  
**A Global Water Company**  
*Groundwater Blending Report*

## **1.0 BACKGROUND**

### **1.1 Purpose**

The intention of Santa Cruz Water Company (SCWC) is to blend water from groundwater wells located in Maricopa, Arizona to drinking water quality acceptable to meet the requirements of the Safe Drinking Water Act, and those of the USEPA and Arizona Department of Environmental Quality (ADEQ).

The objective of this blending plan is to determine and demonstrate the well operating strategies required to ensure the company's water meets the established maximum contaminant levels (MCL) at all times. This plan will identify how the system will be controlled during normal operation and during abnormal operation caused by a well failure or a planned shutdown.

As additional wells are brought into the SCWC potable water inventory, this plan will be amended.

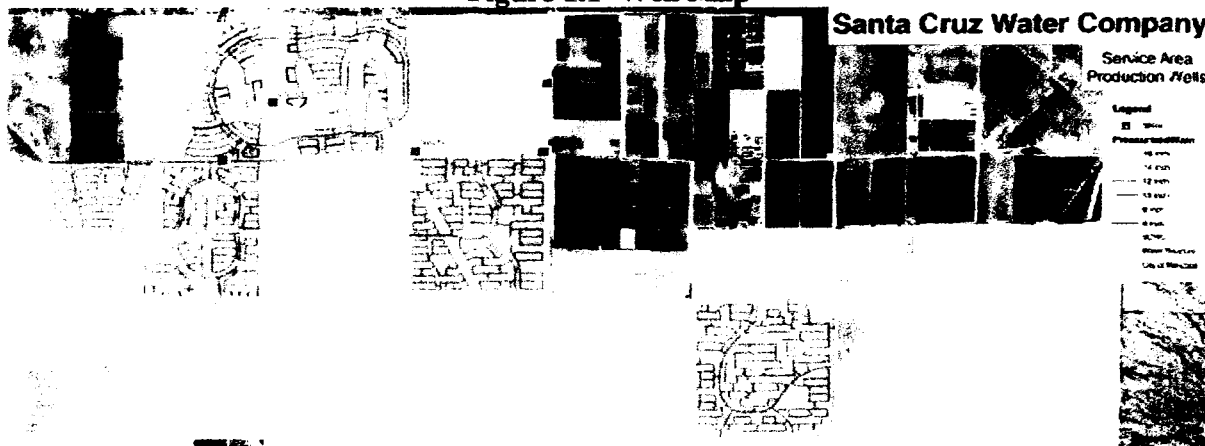
### **1.2 Overview**

The blending system includes the following main components:

- Groundwater well pumps
- Rancho El Dorado Tank System blending/storage tanks

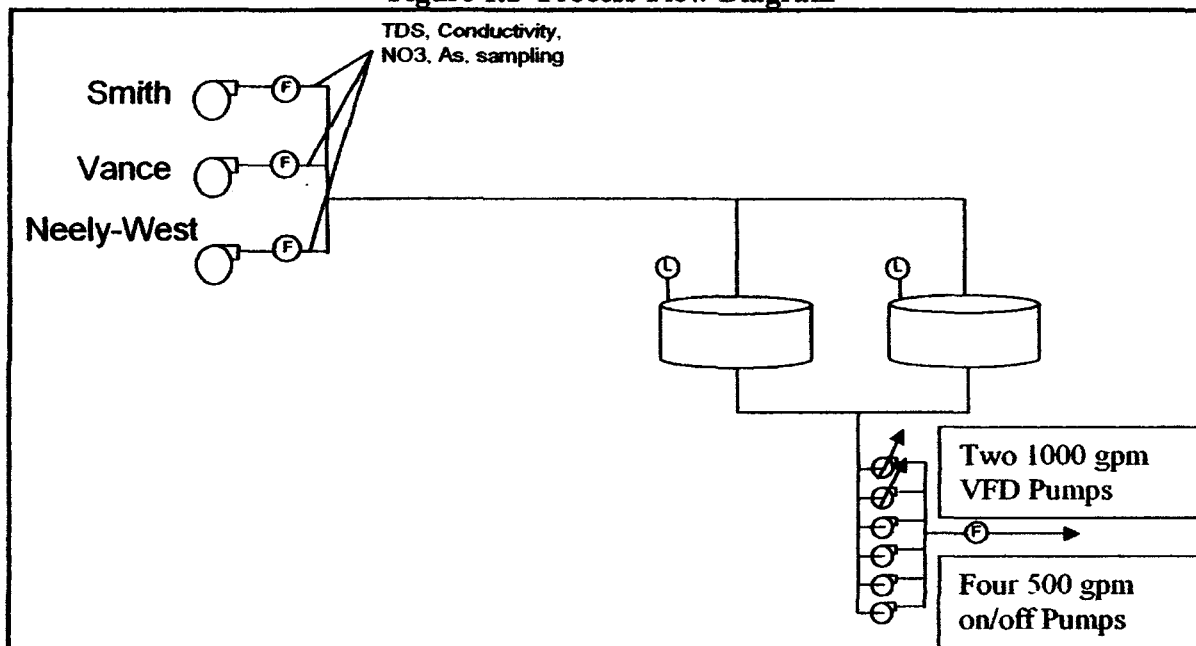
Water from three groundwater wells will be blended at the Rancho El Dorado Tank System prior to distribution. The wells are known as the Neely-West, Smith, and Vance wells. The locations of the wells and tank system are shown on **Figure 1.1**.

**Figure 1.1 Well Map**



The Neely-West well connects into an existing 16-inch and 20-inch pipeline conveys water to the SCWC water treatment plant where blending will occur in the two 1.5 million gallon storage tanks. Two 12-inch lines convey water from the Smith and Vance wells to water tank system. The process flow diagram of the system is shown on Figure 1.2.

**Figure 1.2 Process Flow Diagram**



A detailed site plan can be included at Appendix A. The maximum capacity of the well system, as proposed, is 5,150 gpm, or 7.4 MGD. The wells are listed in the following Table 1.1 with their respective pumping capacity. In addition, the Neely-North and Neely-East wells are being



re-habilitated for use as a potable water supply well. As development progresses, additional wells will be brought onto the SCWC potable inventory. Amendment to this Blending Plan will be submitted as these wells are brought on-line.

**Table 1.1 Wells and Production Capacities**

Well	Capacity, gpm	Capacity, MGD
Smith	1,150	1.656
Vance	2,000	2.880
Neely-West *	1,980	2.880

\*Rehabilitation nearing completion

## 2.0 WATER QUALITY ANALYSIS

An extensive water quality evaluation was conducted on each well. The sampling program entailed 3 components; silt density index testing, water quality sampling and testing, and evaluation of water quality after approximately 24 hours of operation. The time testing was necessary to evaluate the Well-water quality under long term 'real-world' conditions to determine if there would be an impact on the blending strategies. Table 2.1 below summarizes the water quality for each well.

**Table 2.1 Well Water Quality Data**

Parameter	Well		
	Smith	Vance	Neely-West
Capacity, gpm	1150	2000	1980
Capacity, MGD	1.66	2.88	2.88
Ca	68	150	190
Mg	11	24	36
Na	170	190	250
K	4.8	4.3	4.7
NH <sub>4</sub> -N	ND	ND	ND
HCO <sub>3</sub>	93	100	180
SO <sub>4</sub>	180	370	450
Cl	160	280	350
NO <sub>3</sub> -N	3.8	7.9	
F	2.2	1.8	0.7
SiO <sub>2</sub>	29	32	42
TDS	730	1200	1500
TDS (Clcd)	675	1110	1424
Conductivity	1039	1708	2191
Color	ND	ND	ND
Sulfide	ND	ND	ND
Turbidity	ND	ND	ND



SDI	1.7	3.3	3
Oil&Grease	ND	ND	ND
TOC	5.7	0	16
pH	7.5	6.8	6.9
CO <sub>2</sub> (Clcd)	4.8	25.9	37.1
Sr	2.4	3.3	3.8
Ba	0.088	0.047	0.052
Fe	ND	ND	0.071
Mn	ND	ND	ND
As µg/L		7.6	7.1
pHs	7.7	7.3	
LSI	-0.2	-0.5	
RSI	7.9	7.9	

Note: Yellow is safe: more than 20% margin of safety,  
Red is unacceptable: exceed or equal MCL.

A review of the testing data indicates the following:

- The arsenic concentrations from the Smith Well are at the new MCL of 0.010 mg/L (to be established in January 2006).
- The Nitrate concentration for the Neely-West Well is above the nitrate MCL of 10 mg/L
- All other parameters are well within their respective MCLs.
- Constituent concentrations from the Vance well indicate that blending would not be required for operation of the Vance well only.

### 3.0 BLENDING ANALYSIS

The target blending water quality cannot exceed the MCL for any parameter, and it is advisable that the target blending concentration should not exceed 80 percent of the MCL to maintain a margin of safety. However, compliance is measured by remaining below the MCL, even if that is closer to the limit than the target concentration. Table 3.1 summarizes the MCL and ADEQ target blended water quality for selected parameters of concern.

Table 3.1 Water Quality Parameters of Concern

Parameter	MCL	Target
As (µg/L)	10	8
F (mg/L)	4	2
NO <sub>3</sub> -N (mg/L)	10	8



Based on the data shown on **Table 2.1**, the Vance and Neely-West wells have the highest quality effluent based on the regulated constituents: arsenic, fluoride, and nitrate. Without blending, only these wells may provide water to the storage tank for distribution. The Vance Well, however, has a nitrate concentration of 7.9 mg/L, while the Smith Well has an Arsenic concentration of 10 µg/L, which is the MCL. It is recommended, therefore, that either the Vance Well pump should be the first pump in operation for initial filling of the system, or alternately both the Vance and Smith Wells be operated together. The Neely-West Well will be brought online next, which has the highest nitrate concentration and the mid-range of Arsenic of the three Wells.

Several well combinations were evaluated to note the effect on the blended effluent water and the resulting parameter concentrations. Particular attention was paid to the parameters of interest, Arsenic, Fluoride, and Nitrates. The blending combinations are tabulated in **Table 3.2**. The table also indicates what well water combinations exceed the MCL limits and exceed the operating target concentration for each parameter. The detailed table blending results are presented in **Appendix B**.

**Table 3.2 Blending Results**

Parameter	S	V	NW	S,V	S,NW	V,NW	S,V,NW
gpm	1150	2000	1980	3150	3130	3980	5130
MGD	1.656	2.88	2.85	4.536	4.51	5.73	7.39
NO3-N (mg/L)	3.8	7.9		6.4	8.4	9.4	8.2
F (mg/L)	2.2	1.8	0.7	1.9	1.3	1.3	1.5
As (ug/L)		7.60	7.10	8.48	8.17	7.35	7.94

Note: Yellow is safe: more than 20% margin of safety,  
Orange is caution: within 20% of MCL,  
Red is unacceptable: exceed or equal MCL.

The blending results indicate what combinations of Wells operated together would produce water that meets the MCLs for arsenic, fluoride and nitrates. Assuming that three wells will be operated, there will be 2 combinations of well operation that will be locked out since they exceeds a MCL for either Arsenic or Nitrate. They are marked in red above.

The results of the blending analysis were used to determine:

- The mode of operation under normal conditions,





- The mode of operation under abnormal conditions, such as when a pump is out of service for maintenance or repairs, and
- Specific 'lock-out' combinations of wells that should be avoided.

## **4.0 OPERATING STRATEGIES**

### **4.1 Normal Operation**

Since most of the wells have constituent concentrations that are within the proposed MCL for all constituents except for Smith with Arsenic, and Neely-West on Nitrate, all Wells can be operated with On/Off pumping and do not require VFD's as long as certain combinations are avoided.

Under normal operation, the following conditions apply:

- Tank level will consist of level set-points, each initiating or terminating the operation of a well pump.
- Of the 3 wells currently in operation, the Smith and Vance wells are the main wells to be brought on-line and run at 100% capacity each for normal operation. For initial system startup the Vance Well should be the first well given the As concentration in the Smith Well. Once filled, the Smith and Vance Wells can be alternated as lead/lag pumps in the cycle once the system is up and running or in tandem.
- This operational option is based on a 3 MM gallon tank reservoir volume versus the Smith flow rate of only 1.7 MGD. It would take 2 days of continuous Smith-only Well operation to drive the As concentration up near the MCL. This will not happen as night time demand falls significantly and the Smith Well will shut off and the Vance Well will be called into service next. Together these wells provide water that meets all parameter conditions under the new MCL established and combined they provide a capacity of 3150 gpm, or 4.54 MGD.
- As additional capacity is required the Neely-West Well will be brought into service and the Smith Well turned off, or maintained in service, for respective capacities of 5.73 MGD and 7.39 MGD.

### **4.2 Set-Point Operation (3-Well Operations)**

All pumps will be operated in either the ON or OFF position; 100 percent or 0 percent. The level in the blending/storage tank controls the amount of flow from the well system. There are four (4) level set-points that communicate with the control system in order to call into operation the proper groundwater wells. While either the Smith or Vance wells can begin the cycle, and they



will either alternate as the lead pump in the cycle or operate in tandem, for discussion purposes the Vance well will start as the lead well pump. Table 4.1 shows one control description:

**Table 4.1 Control Description**

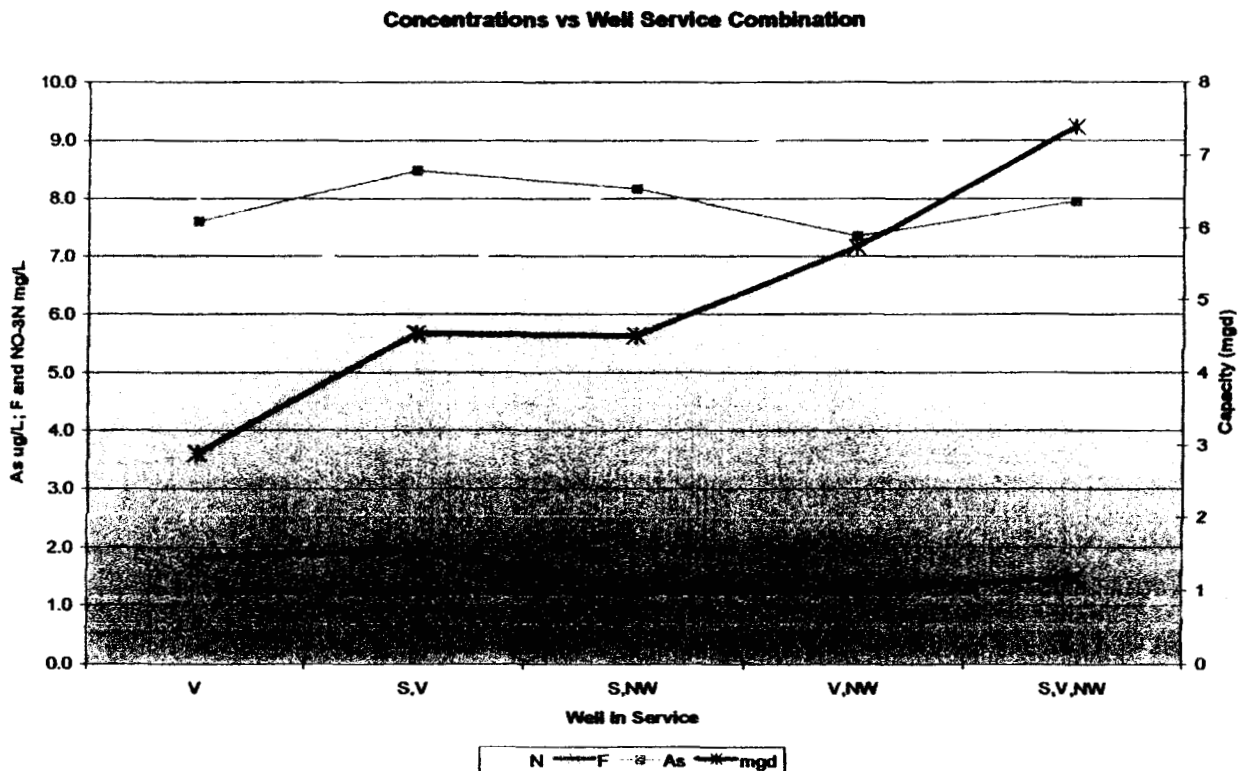
Tank Set-Point	Tank Level (ft)	Tank Level % full	Pump Schedule
0	22	100%	All pumps will either be off or will be shut off when water level reaches this height.
1	20.5	93%	The Vance well will be the first well brought online by the Control System on Tank Level Set-point No. 1, unless the Smith well is shutdown (refer to Section 1.3.B – Abnormal Operation).
2	18.9	86%	The Smith well will be the second well brought into service by the control system if the water level decreases to Set-point 2. At this blending condition, all regulatory standards are met (refer to Table 1.3-2)
3	17.4	79%	When the level decreases to Tank Level Set-point No. 3 the Neely-West well will be placed into operation. At this blending condition, all regulatory standards are met (refer to Table 1.3-2)

**Note:** Final tank depths will require evaluation so as not to overtax the pump motors start/stop cycles

Figure 4.1, below, is a graph of the water quality for the above 3-Well operation scenario. Apparent is the increasing nitrate concentration until all three wells are in service. Also apparent is the steady water quality for Arsenic averaging near 8 mg/L. Given that the V-NE combination has a nitrate concentration of 9.4 mg/L, this Well combination will be avoided under normal use and will only be used if capacity requirements exceed the Vance Well capacity and the Smith Well is off-line.



Figure 4.1 Water Quality for Well Operation



Note: the concentrations are indicated on the left y-axis, while the corresponding total well capacities for the well combinations are indicated on the right y-axis.

#### 4.2.1 Lock-out Combinations

The control system will be configured to preclude certain combinations (lock-out combinations). Specifically, the control system will not permit the operation of the Smith Well or Neely-West Well alone in order to keep within the constituent MCLs.

#### 4.2.2 Arsenic Concentration

The Smith Well cannot be operated without additional blending wells in service, as it will exceed the arsenic MCL of 10 mg/L. It is suggested that for a margin of safety that following combination be used with the awareness that the blend water will be just within 2 mg/L of the arsenic limit.

- NN,
- S-NN
- V-NN



- S-V-NN

#### **4.2.3 Nitrate**

The Neely-West Well cannot be operated without additional blending wells in service, as it will exceed the nitrate MCL of 10 mg/L. All blending combinations fall within the Nitrate limits and as such do not pose a compliance issue.

#### **4.2.4 Fluoride**

All blending combinations fall within the Fluoride limits and as such do not pose a compliance issue.

#### **4.2.5 Low Flow Interlock**

Each well pump discharge line has a flow meter, which is interlocked with the corresponding well pump. A low flow condition at any of the pumps will cause the control system to shutdown the pump and alert the operators to investigate the problem. See alternative operation below for more information.

### **4.3 Abnormal Operation**

For the blending system abnormal operation occurs when a well pump is shutdown for maintenance or due to well failure. Initially only 2 wells will be in operation. As soon as practicable the Neely-West Well will be rehabilitated and called into service. As such the three alternative operating conditions that may occur are as follows:

- Zero flow from Smith Well
- Zero flow from Vance Well
- Zero flow from Neely-West Well

In the event that there is zero flow from any of the wells after the Control System calls a pump into service, the Control System will call the next pump in the sequence to operate, after a time delay. Due to water quality of certain wells, certain lock-out combinations will be in effect. See Section 4.2.1 Lock-out Combinations.

#### **4.3.1 Abnormal Condition No. 1 - Smith Well Shutdown**

If the Smith Well is off line or does not startup, the next well in the cycle will start up while maintaining the well combination lock-out protocol. If the level in the blending tank decreases to Tank Level Set-point No. 1 and the Smith Well does not start up after a time delay, the



Control System will call the Vance Well into operation. If the level in the blending tank decreases to Tank Level Set-point No. 2 and the Smith Well does not start up after a time delay, the Control System will call the Neely-West Well into operation.

#### **4.3.2 Abnormal Condition No. 2 - Vance Well Shutdown**

If the Vance Well does not start up after a time delay and the Smith Well is already in operation, the Control System will call the Neely-West Well into operation. At this combination, the concentrations of fluoride, arsenic, and nitrate are still below the MCL as shown in Table 3.1.

If the level in the blending tank decreases to Tank Level Set-point No. 3 and the Vance Well does not start up after a time delay, the Control System will sound an alarm and alert the operators to a potential water shortage.

Note that if daily water demand exceeds 4.5 MGD, then the Vance Well must be in service to maintain MCL compliance.

#### **4.3.3 Abnormal Condition No. 3 - Neely-West Well Shutdown**

If the level in the blending tank decreases to Tank Level Set-point No. 3 and the Neely-West Well does not start up after a time delay, the Control System will alert the operations staff of the problem and a possible water shortage.

## **5.0 EQUIPMENT DESIGN CRITERIA**

Based on historical data the well pumps deliver their rated capacities as noted. All other equipment is standard, off-the-shelf SCADA, control, monitoring and call-out equipment that is common in the water delivery industry as outlined in the following section.

## **6.0 INSTRUMENTATION AND CONTROL**

Instrumentation will largely consist of a rudimentary Alan Bradley, or similar type, SCADA control system connected to field in-line sampling equipment. Attached to each Well discharge will be the following:

- In-line flow meters

Low-flow or no-flow conditions from any well will trigger a well pump shut down and will activate the control system to call up the next pump in the queue.



Storage Tank water volume will be measured via ultrasonic level sensor connected to the SCADA system. When the water level in each tank decreases to a set point, the Control System connected to the SCADA system will call the appropriate pump into service.

The interlock to lock-out certain combinations will be software driven and be part of the Control system installed. There will not be an ability to override the lock-out at the operator level. Override will require Global Water senior management level intervention and be password protected.

Flow and turbidity meters will also be used in the discharge line leading from the storage tanks.

Unfortunately, no in-line automatic samplers exist to measure Arsenic and Fluoride. As such, water quality compliance will rely on field sampling by operations personnel with subsequent wet lab testing both by operations personnel and by an approved laboratory for compliance purposes, as per the proposed schedule in Section 6.0 below.

## 7.0 PROCEDURES

### 7.1 Routine Monitoring

These systems as designed will use sequential or staged well pumping. Two operational phases and associated sampling protocols have been proposed, as summarized in Table 6.1 below:

**Table 6.1 Summary of Operational Phases**

<b>Operational Phase</b>	<b>When to Follow</b>
Initial Well Sampling: Month Sampling	During initial month of actual service –daily sampling
Initial Operations period	Subsequent 5 month period monthly sampling
Normal Operation Sampling Protocol	Ongoing regular quarterly sampling

The objective of the sampling protocol is to ensure safe operation and establish baseline performance numbers. The treatment unit will be operated and samples will be collected by Santa Cruz Water Company.

### 7.2 Initial Well Start-up

During the initial start up period of a new well, the following samples will be collected on a daily basis for one month:

- Raw Water from each operating well



- Blend water leaving the storage tank

During the initial Sampling Run the samples will be collected and analyzed for arsenic, nitrates, and fluoride.

### ***7.3 Initial Operations Period***

After the first month of start up operations has occurred and approval has been received from the Department, the operator will shift to the "Initial Operations Sampling Protocol". This protocol will be followed for the subsequent 5 months of operation. After which the "Normal Operations Sampling Protocol" will be reviewed and may be revised to include any desired changes as operational experience is gained.

"Initial Operations Sampling Protocol" will consist of collecting samples on a monthly basis for the subsequent 5 months for:

- Each operational Raw Water Well
- Blended water leaving the storage tank

### ***7.4 Normal Operations Sampling Protocol***

After the first six (6) month of start up and initial operations has occurred and approval has been received from the Department, the operator will shift to the "Normal Operations Sampling Protocol. This protocol will be followed from then on.

This sampling program will test quarterly samples of water from the following locations:

- Raw water from each operating well
- Blended water leaving the storage tank

When a new well is brought online, it will be sampled in accordance with the above 3-phase schedules, as will the blended water.

### ***7.5 Start-Up Procedures***

After all electrical, control, monitoring and sampling systems have been checked out and verified as operational, each pump will be called into service. The Vance Well will be put into operation first, followed by the Smith Well will come on-line, followed by the Neely-West Well as described above.

EXHIBIT

"E"



**ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY  
CERTIFICATE OF APPROVAL TO CONSTRUCT  
DRINKING WATER FACILITIES**

Page 1 of 2


<b>ADEQ FILE NO.:</b> 20050847	<b>LTF No.:</b> 38064
<b>SUPPLYING SYSTEM NAME:</b> Santa Cruz Water Co., LLC <b>PUBLIC WATER SYSTEM NO.:</b> 11-131	
<b>PROJECT NAME:</b> Rancho El Dorado Pumping Improvements	
<b>PROJECT OWNER:</b> Graham Symmonds, Santa Cruz Water Company	
<b>ADDRESS:</b> 22601 N. 19 <sup>th</sup> Ave. #210, Phoenix, AZ 85027	
<b>LOCATION:</b> Smith-Enke Road and Santa Rosa Road, City of Maricopa	<b>COUNTY:</b> Pinal
<b>PROJECT DESCRIPTION:</b> Installation of water treatment facility upgrades, including pumps, chlorinating facility, and related piping and fittings, to increase the pumping capacity from 4,000 GPM to 9,100 GPM at Rancho Ed Dorado, City of Maricopa.	

*Approval to Construct the above-described facility as represented in approved plan documents on file with the Arizona Department of Environmental Quality is hereby given subject to the following provisions:*

1. This project must be constructed in accordance with all applicable laws, including Title 49, Chapter 2, Article 9 of the Arizona Revised Statutes and Title 18, Chapter 5, Article 5 of the Arizona Administrative Code.
2. Upon completion of construction, the engineer shall fill out the Engineer's Certificate of Completion, and forward it to the Drinking Water Field Engineering and Inspection Unit - Phoenix. If all requirements have been completed, that unit will issue a Certificate of Approval of Construction. R18-5-507(B), Ariz. Admin. Code. At the project owner's request, the Department *may* conduct the final inspection required pursuant to R18-5-507(B); such a request must be made in writing in accordance with the time requirements of R18-5-507(C), Ariz. Admin. Code.

Provisions 3 through 5 are continued on Page 2 of 2 total pages

MAH:mah  
50847dbm.5nt

By:   
Kwame Agyare, P.E., Manager  
Technical Engineering Unit  
Drinking Water Section  
Water Quality Division

11/21/05  
Date Approved

cc: File No: 20050847, LTF No. 38064  
County Health Department: Pinal  
Drinking Water Field Engineering/Inspection Unit - Phoenix  
Water System: Santa Cruz Water Co.  
Planning & Zoning: Pinal County  
Engineer: William D. Roberts, P.E.  
Engineering Review Database  
Romann Diaz, Manager, Field Service Unit

CERTIFICATE OF APPROVAL TO CONSTRUCT DRINKING WATER DISTRIBUTION SYSTEM:  
ADEQ FILE NO. 20050847: RANCHO EL DORADO PUMPING IMPROVEMENTS  
PAGE 2 OF 2 PROVISIONS, CONTINUED

3. This certificate will be void if construction has not started within one year after the Certificate of Approval to Construct is issued, there is a halt in construction of more than one year, or construction is not completed within three years of the approval date. Upon receipt of a written request for an extension of time, the Department may grant an extension of time; an extension of time must be in writing. R18-5-505(E), Ariz. Admin. Code.
4. Operation of a newly constructed facility shall not begin until a Certificate of Approval of Construction has been issued by the Department.
5. Before construction of a modification, expansion, or alteration of this distribution system begins, a separate Approval to Construct applicable to each addition must be obtained. R18-5-505(B), Ariz. Admin. Code.